An Analysis of a Hundred Cases of Kwashiorkor

BY

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The importance of protein calorie malnutrition in African countries is well known and Jelliffe (1955) considers that kwashiorkor is the outstanding global nutritional problem. The part played by malnutrition in Zambia may be assessed by the fact that 15 per cent. of the total child deaths are directly due to this condition (Davidson, 1965). It was thought it would be of value to analyse the factors in the aetiology and certain of the clinical features of kwashiorkor as seen here.

Method

Cyclostyled case sheets were made out with the features which were to be noted; these were completed by the houseman or government medical officer. One hundred consecutive cases were recorded.

Diagnostic Criteria

Only those patients who had the accepted clinical signs of kwashiorkor (Jelliffe, 1962) were included. All had retarded growth, muscle wasting, oedema and psychomotor changes. Underweight and marasmic children with a mild degree of oedema were excluded. The patients in fact were what would be regarded as moderate to severe kwashiorkor.

Treatment

Severe cases were given a blood transfusion when blood was available, but otherwise the treatment was standardised as far as possible. Dried skimmed milk was given from the outset, with added potassium and vitamins. Tube feeding was resorted to if the intake was inadequate; this measure was used more frequently in the second 50 cases as its value became obvious. All were given antimalarials and a broad spectrum antibiotic or penicillin and sulphadimidine. Hypothermia was treated by heat cradles. Alternate cases were given nandrolone (Durabolin).

The Features Analysed

Age

The average age was 17 months, the youngest 10 months and the oldest four years. This is the usual age group affected (Trowell and Davies, 1952).

Sex

There were 52 males and 48 females.

Age of Weaning

This was taken to mean the age at which breast feeding was stopped permanently. The average was 11 months. Welbourn (1963) found that in Buganda the majority of babies were breast-fed till the ages of 12 or 18 months. The age at which well-nourished children in Lusaka were weaned is not known.

Urban and Rural Families

Seventy patients came from what were recorded as urban families and 30 from rural. No conclusion can be drawn from this, as the hospital, being a central hospital, accepts patients from a large area outside the town.

Family Income

An attempt was made to get the actual figures for the father's wage, but great resistance was encountered to the giving of this information, and so we had to be satisfied with the father's occupation or trade and whether he was at present employed. The actual money coming into the household was then estimated by referring to a table of minimum salaries. In 51 cases the father was earning more than £10 per month and not a few more than £20 and more per month. In 49 cases the wages were below £10 and in 10 cases the fathers were out of work or in prison. Although poverty is a factor, it is far from being the only one.

Cultural and Educational Standard

We did not have the staff to deal with this aspect, but many of the cases were from families whose father was fairly well educated.

Diet

A dietary history was obtained in all, and in 70 cases mealie meal porridge was the only food the child had been given. In many cases the mother was asked why, and the reply was usually that this was the only food they had thought of giving and that there was no need for anything else. In 10 cases mealie meal, tea and Fanta were recorded and in the remainder mealie meal and milk. The lack of knowledge of suitable infant's food has been stressed by Jelliffe (1955). The need for food education is obvious.

Family Size and Place in Family

The figures for this were incomplete and, without a comparable control group of healthy children, were thought to be of little value.

Clinical Features

Oedema

This was present in all and varied from mild to severe, but appeared to bear no relationship to the prognosis.

Skin Changes

This was present in 60 cases, and in most it was extensive and severe. The usual starting site of the dermatosis was the buttock.

ASSOCIATED DISEASES

Infective Diarrhoea

This was judged to be present in 31 cases by the presence of fever, and of pus and red blood cells in the stool. We frequently found it difficult to decide whether the diarrhoea was just part of the kwashiorkor or an infection. Intractable and recurrent diarrhoea caused us great concern until we learned of the lactose intolerance which occurs in these patients. (The use of a lactose-free diet in these cases has gone a long way towards solving this problem.)

Pneumonia

Bronchopneumonia was present in 22 patients.

Malaria

Falciparum parasites were seen in the blood slides in only four patients, but all were given antimalarial treatment.

Anaemia

This was recorded as being present in 28 cases, but this is not the true incidence, as figures were not available in over 30. A more careful and detailed study on the anaemia in kwashiorkor is at present being undertaken. Sickle cell anaemia was seen only twice.

Serum Albumen

The average level was 1.7 gm. per cent. Trowell and Jelliffe (1958) state that it is usually under 2 gm. per cent. In our series the level did not appear to bear any relationship to the severity of the illness.

Hypothermia

A hypothermic rectal temperature was noted in eight cases. A lotion thermometer was used, but owing to the high breakage rate was not recorded in all. There were at least six other cases where it was probably present. Lawless and Lawless (1963) postulate that cold injury in a malnourished child is kwashiorkor, but we found little evidence that hypothermia is anything more than part of the syndrome of severe kwashiorkor and that it is a bad prognostic sign. Details of seasonal incidence have been kept, and as far as they go lend no support to this theory.

MORTALITY

There were 44 deaths in this series, 12 of these occurring within the first 24 hours. Four of the 24 deaths happened within three hours of admission. Nineteen deaths were associated with pneumonia, and diarrhoea was thought to be an aggravating factor in 22 cases. Both the conditions were present in 20 cases. Anaemia was thought to be an important contributory factor in six cases, and measles caused six of the late deaths. This appalling death rate compares very unfavourably with Trowell and Jelliffe's (1958) figure of 5 per cent. to 20 per cent. Gelfand (1956) reports a mortality of 90 per cent. in 1946, falling to 20 per cent. in 1956. We hope by a more vigorous approach and increasing attention to nursing detail to reduce this figure.

NANDROLONE

The treatment as used here is very much the same as recommended by Jelliffe (1962), and the only addition we have made is the use of an anabolic steroid. We also employed the usual measures to combat hypothermia. Fifty cases were treated with nandrolone and there were 21 deaths in this series; 50 cases had no nandrolone and there were 23 deaths. This is not significant. Davidson (1962) and Baldachin and Rachman (1964) have already reported on the use of this substance, but were unable to reach any conclusion.

BLOOD TRANSFUSION

No breakdown of the figures on the value of blood transfusion is possible, as we felt it was morally wrong to withhold this treatment which we are quite sure is life-saving.

SUMMARY

Various aspects of kwashiorkor as it is seen in Lusaka are described and briefly discussed.

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